A. Cost-of-Service Ratemaking: Historical Embedded Costs

As a regulatory "tool," this type of ratemaking clearly has the longest history; it originated in railroad regulation in the late 1800s under the Interstate Commerce Commission.[32] In its simplest form, rates are determined in reference to a revenue requirement, which in turn is determined by summing two aggregated components of a firm's costs: the expenses incurred to provide the service and a return on capital. The latter component is calculated by applying an allowed rate of return to the rate base. The rate base is primarily the net book value of plant investment, which is determined by subtracting accumulated depreciation from the original cost of the plant investment.

This type of ratemaking, and regulation in general, was motivated in part by three issues:[33]

- Natural monopolies;
- Undue price discrimination; and
- Destructive competition.

Early in the history of regulation, it was generally accepted that in some cases, it is preferable to have one firm, as opposed to many, serve a particular market. This situation arose in those instances in which the nature of technology provides significant cost savings to larger firms. Specifically, economies of scale are said to give rise to natural monopolies. If a firm enjoys economies of scale, it can double all of its production inputs and more than double its output. As a result, the firm can lower costs simply by expanding the size of its operation.

Without regard to economies of scale, early regulation was also motivated in part by undue price discrimination and destructive competition. Undue price discrimination exists if consumers are charged different prices for the same product and the differences cannot be accounted for by cost differentials. Destructive competition is said to result when an industry

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32 H. Craig Peterson, *Business and Government*, Second Edition, Harper and Row, 1985, Chapter 10.

33 *Ibid.*

is marked by excessive price wars. Although in the short run consumers benefit from such a situation, it is thought that consumers can be harmed in the long run by excessive price wars through collusion, poor service, or the demise of the number of firms in a market.

Although cost-of-service ratemaking based on embedded costs developed in response to all three of these issues, its origin is most certainly related to the notion of natural monopoly. Economists have long held that the pricing and output decisions of a natural monopoly, if regulated, present somewhat of a dilemma. First, if granted a monopoly franchise but left unregulated, the firm would produce too little output and charge too high a price. In short, the equilibrium conditions for this firm would be no different than any firm capable of fostering and maintaining its monopoly position. Alternatively, if granted a monopoly franchise but forced to price its product in a manner consistent with a competitive market (*i.e.*, price equal to marginal costs), the firm would be unable to earn a normal return on capital. The latter situation results because the marginal costs for a natural monopoly decline over the relevant range of production and, as such, are always less than the firm's average costs, which include the return component.

To address the dilemma just described, regulators adopted a ratemaking principle based on average costs. Specifically, the natural monopoly was required to set a price equal to the average, as opposed to the marginal, cost of production. The rates resulting from a revenue requirement based on embedded costs are designed to be equivalent to a firm's average costs. Unfortunately, average-cost pricing based on embedded costs is deficient on two grounds. First, even if average costs are correctly captured, such a requirement imposes what economists term a "welfare" loss on society in that prices diverge from the optimal level equivalent of marginal costs. Second, and more importantly in the long run, an average cost calculation based on embedded costs is unlikely to equal the true economic equivalent of long-run average costs. This second fact has the potential to impose significant distortions in the market.[34]

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[34] See Robert S. Pindyck and Daniel Rubenfeld, *Microeconomics*, 1989, pp. 292-295 for a discussion of welfare or deadweight loss and Chapter 7 for a discussion of long-run average cost.

In the early years of regulation it was recognized that the prices set through the regulatory rate process can not be arbitrary or ill-conceived. Rates must serve as signals in regulated markets, much like prices are signals in unregulated markets. Prices affect the actions of consumers and potential competitors, and act to allocate resources. If rates are set too high or too low, resources will not be allocated efficiently. Rates that are too far above normal competitive levels cause consumers to reduce consumption and provide alternative suppliers with a strong incentive to enter the market and compete with the regulated firm. Conversely, rates that are below their competitive equivalents encourage consumers to consume too much, and provide regulated firms with little incentive to reduce long-run investment and alternative suppliers with no incentive to enter the market and make up any shortfall.

It is thus important to initially establish a rate that approximates, to the extent possible, a price observed in a competitive market. The use of embedded costs and, particularly, net book value as the basis of the return component of a regulated company is problematic. The net book value of a regulated firm is calculated by reducing the original cost of plant investment by accumulated depreciation. This may or may not reflect the competitive market value for those assets. In the event that net book value does not equate to the competitive market value, the established rate will not equal its competitive counterpart. The further the rate, based on net book value, diverges from its competitive counterpart, the larger the distortion and subsequent misallocation of resources. Regulators have long understood the shortcomings of this type of ratemaking and have been gradually departing from this method and adopting alternative frameworks that are more capable of imitating competitive market pricing.

Cost-of-service ratemaking based on embedded costs arose in an era in which natural monopoly theory was firmly entrenched. This form of ratemaking also developed at a time when markets were characterized by large firms with little, if any, competitive threat from smaller "fringe" firms. These facts, combined with the desire to construct a tractable framework, motivated cost-of-service ratemaking based on embedded costs (most importantly, plant investment valued at net book value). The ease of implementation cannot be overlooked as a motivating factor for the development of this type of ratemaking. A regulator's job was

made much easier if all that was required was an audit of the regulated firm's books to determine the various cost components included in the ratemaking formula. Unfortunately, the ease with which a rate can be established must be, and is, weighed against the distortionary cost imposed on the market. The use of net book value of investment as the basis for a cost-based rate has increasingly been recognized as imposing significant market distortions.[35] While regulators have recognized that the use of historical costs can impose pricing distortions, they have also recognized that departures from this type of ratemaking can give rise to stranded investment. Stranded investment can arise in those instances in which a regulated entity is required to charge a rate for its services that is inadequate to recover its prudently incurred historic costs. It is generally accepted by regulators and policy makers that, unless it can be shown that these historical costs were imprudently incurred, that the regulated entity should be provided the opportunity to recover these costs. Actual recovery of these costs can be accomplished in any number of ways. It is this recognition that has motivated regulators to employ alternative capital cost concepts. Ratemaking based on the replacement cost of capital is one such alternative.

B. Cost-of-Service Ratemaking Based on the Replacement Cost of Capital

In times of price stability, the value of plant investment neither rises nor falls. Thus, the reliance on net book value to compute cost-of-service rates does not impose the distortions previously discussed. However, over the past four decades, price instability has been the rule rather than the exception.

As prices rise, the replacement cost of capital will, of course, exceed the net book embedded value of capital. Conversely, as prices fall, the replacement cost of capital will be less than embedded book value. It is not surprising that the price of investment goods can

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[35] A market distortion is said to exist if prices set in the ratemaking process diverge significantly from the competitive standard. Prices set with reference to net book value can in no way be expected to emulate such prices. Assuming competitive market conditions, the only costs considered by producers are those under their control (*i.e.*, forward-looking costs) and do not include historical costs. Thus, competitive market prices cannot be expected to, and do not, increase or decrease to reflect costs already incurred (*i.e.*, net book costs).

increase over time and equal or exceed the economy's general inflation rate. While at first glance, falling prices might seem rare, in reality, it is not uncommon to observe the prices of capital falling, which can be attributed to improvements in technology. The productivity of a unit of capital good can increase as technology improves, thus leading to price decreases.

Significant price instability caused regulators to adopt replacement cost as the relevant value of capital to be included in their ratemaking formulas. Replacement cost ratemaking is desirable for a number of reasons. A cost-of-service rate based on replacement costs more closely approximates the prices that would be observed for the provision of the good in a competitive market. Replacement cost ratemaking imposed on the incumbent regulated firm also prevents that firm from exercising market power at the expense of other firms or consumers. Further, replacement costs create the right investment incentives for the incumbent firm as well as competitors. Finally, replacement costs prevent the incumbent firm from engaging in anti-competitive cross-subsidies which could hinder the development of a competitive market. Specifically, in those instances where a utility has an affiliate company, replacement costs prevent the utility from favoring its affiliate with low, embedded cost-based rates. The use of replacement cost, in effect, places the affiliate on the same par with other firms in the market. Thus, overall, the use of replacement costs requires that regulated incumbent firms price at levels consistent with competitive market conditions.

Although the use of replacement cost in ratemaking formulas represented a step closer to imitating competitive market pricing, regulators were still burdened by the extensive audits required to establish rates as well as the long and tedious rate case process used to validate each and every cost component. In addition, the regulator was charged with the often burdensome responsibility of determining the prudence of the firm's investment, purchase and operating decisions. The prudence process is a hindsight review in which a commission audits the firm's expenditures and operating decisions to determine if they meet the commission's prudence standard. It soon became clear that these exercises were time-consuming and costly for both the regulator and the firm being regulated. To move beyond such reviews, commissions and regulated firms began investigating alternative ratemaking frameworks that would alleviate the

need for the prudence review, while simultaneously producing a rate consistent with competitive market conditions. The use of incentive ratemaking was one such step in this direction.

C. Incentive Pricing

Incentive pricing has two primary goals and one secondary goal. Incentive pricing was conceived primarily as a vehicle to more firmly align the interests of ratepayers and the regulated firm, and it was also considered a more practical means for achieving a rate structure consistent with an unregulated market. Secondarily, incentive pricing has been "sold" as a means of eliminating hindsight prudence reviews.

The adoption of replacement costs, rather than embedded net book value, as a means of measuring plant investment has long been considered a more appropriate way of capturing market value in a cost-based rate. However, this step alone does not guarantee that the resulting rates will be equivalent to their competitive market counterparts. A regulated firm has a great deal of discretion in its investment and purchasing decisions. While a regulator can oversee these decisions and review their prudence, as a practical matter, a regulator cannot oversee all decisions. Moreover, in some decisions the regulated firm has a clear incentive to "play it safe" and engage in behavior that, while consistent with a prudence standard, is not necessarily cost-minimizing. In some respects, the regulated firm faces a "catch-22." If the firm tries innovative strategies to reduce costs, it runs the risk of not being effective. In addition, the firm also takes the chance that the regulator, through a hindsight review, might deem such a strategy imprudent and "disallow" the firm recovery of those costs. In the event the strategy is successful and, in fact, lowers costs, the firm, in the absence of an incentive ratemaking plan, is not rewarded for superior performance. In these cases, the interests of the regulated firm and its customers are clearly at odds.

Incentive ratemaking was, in part, a response to the improper alignment of interests between the regulated firm and its customers. Under an incentive ratemaking plan, a regulated firm's performance is measured against a cost benchmark. If the costs incurred by the firm exceed the benchmark, the customers and firm share in the excess costs. Conversely, if the firm

is successful in reducing costs below the benchmark, the customers and the firm share in the savings. Thus, the interests of the firm and those of the customer are firmly aligned.

The construction of the benchmark satisfies the other primary goal identified above. The cost benchmark under an incentive ratemaking plan must be objective, verifiable and market-sensitive. The latter goal renders rates under incentive pricing plans more consistent with competitive market standards. A regulated firm's costs are no longer determined in strict reference to the historical (or even replacement costs) embedded costs. Instead, the costs are determined in reference to market-determined benchmarks that can be based on industry-wide standards or published market indices. It is important to note that the benchmark is market-sensitive and thus comparable to the prices in competitive market conditions. The prices charged by the regulated firm are consistent with competitive market conditions and thus act as meaningful price signals, as mentioned previously. Consumers and firms in the market, as well as those poised to enter the market face the proper price signal and thus make more efficient long-run decisions.

Aside from its attractiveness at generating proper pricing signals and properly aligning the interests of firms and customers, incentive pricing has been considered desirable because it is a market-based alternative in those instances in which reduced regulation is not appropriate. That is, the decision to reduce or eliminate regulation must be based on whether the market has features consistent with competition. In some instances, a market simply does not meet these criteria. For example, the distribution (not transport or sale) of natural gas by the LDC is considered to be one of the true remaining natural monopolies. It would not be in the public interest to have competing firms building distribution pipelines and offering this service. Rather, it is more cost-effective to have one firm serve an entire community. Although this is an extreme example in which eliminating regulation is not likely to be appropriate, it does not mean that establishing rates consistent with competitive market conditions is impossible. This can be achieved through incentive pricing.

Although an attractive alternative, incentive pricing is not a replacement for rates or

prices established by negotiation in a competitive market. Because of this fact, commissions have subscribed, where appropriate, to a ratemaking methodology whereby rates are determined through negotiations between the purchaser and the seller. In those cases where there is a lingering suspicion that the market might not have features consistent with competition, regulators have allowed negotiation to determine prices, but have reserved the right for purchasers to employ a recourse option.

D. Negotiated Rates with a Recourse Option

Negotiated rates began to emerge with the realization that some markets and services under regulatory control did or could develop features consistent with a competitive market. In particular, many cases exist in which a governing regulatory body prevented market entry. As regulators began to allow entry, competitive market condition did indeed develop in some markets. As competition began to take hold, the need for cost-based or incentive-type rates diminished and in most cases conflicted with the new competitive environment. To accommodate and advance competition and to place all market participants on an equal footing, regulators began exploring market-based pricing solutions.

Negotiated rates with a recourse option was one of the first market-based rate concepts with which regulators experimented. Based on a market power evaluation that demonstrated a lack of actual or potential market power, regulators relied on negotiated rate solutions. Negotiation of rates, of course, differs from the previous three rate concepts described in this section in that the rates are determined through a market-based bargaining process. However, the recourse option alters the bargaining process somewhat.

The recourse option was imposed by regulators in those cases where it had not been adequately demonstrated that a firm or market was effectively competitive. Negotiated rates with a recourse option provided purchasers of a regulated good or service two options. First, the parties were free to negotiate a rate. In a competitive market, such a rate would be deemed efficient and thus would properly serve to allocate resources in an efficient manner. Second, in the event the parties could not agree on a rate, the purchaser was allowed a recourse to the

cost-of-service rate established by the regulator.

Although negotiated rates with a recourse option was a significant first step towards more desirable market-based outcomes, some problems have arisen. These problems stem from the recourse option. Depending on the difference between the negotiated and recourse rate, either party to the transaction might have little incentive to negotiate. For example, if the cost-based embedded rate is substantially below the market-determined negotiated rate, purchasers will have little incentive to negotiate. The negotiation process is rendered, for all practical purposes, moot.[36]

E. Negotiated Rates with No Recourse Option

Negotiated rates with no recourse option alleviate the problems associated with the recourse itself, and have been adopted by regulators in those cases where a firm or market has been deemed effectively competitive.

Absent a recourse option, parties to a transaction are forced to bargain in good faith. At no time can one party hold the other "hostage" as a result of the recourse option. In those instances where effective competitive negotiation prevails, this is the preferred option. Negotiated rates with no recourse option are market-based, thus the prices generated through such negotiation give rise to all the benefits observed in a competitive market. These benefits and the guiding principles that should be adhered to when choosing a pricing framework are discussed in the next section.

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[36] In its rulemaking proceeding RM96-7, the FERC requested comments on how best to implement a recourse rate service for the nation's interstate natural gas pipelines. One of the issues on which the FERC sought comment was how to maintain the "integrity of the recourse service." In reply, some pipelines commented that shippers not be allowed to "cherry-pick" between negotiated terms and recourse rates and thus reserve valuable rights while avoiding, in part, the related costs. This is simply a recognition that the pipelines offer multiple services and should be allowed to negotiate a "package" of services tailored to the customer's need. If forced to provide a recourse rate for every specific service, the shippers would simply choose the lower of the recourse or negotiated rate on a service-by-service basis. In this case, the pipeline is incapable of packaging services in a way that increases the value to them and the shippers. See Foster Natural Gas Report, No. 2083, pp. 1-19.

Section IV. Guiding Economic Principles-Choice of Pricing Framework

A few guiding principles for choosing an appropriate pricing framework can be distilled from the discussion in the preceding section. These principles have guided agencies in the past and thus should clearly guide the decision on pole attachments and conduits.

A. Why Regulation?

Regulation, as previously mentioned, must be premised on an observed market failure. Markets can fail under a number of circumstances, including the presence of:

- Economies of scale or scope;
- Market power;
- Negative or positive externalities;
- Public goods; or
- Information asymmetries.

As mentioned at the beginning of Section III, the presence of economies of scale and scope was the primary motivator underlying early regulation. In order to capture the cost savings of a firm or industry enjoying economies of scale (*i.e.*, natural monopolies), it was necessary to allow monopoly franchises. However, the absence of regulation in these monopolies would act to extract monopoly profits by decreasing production and increasing prices. Rate regulation was the only viable solution.

Regulation is also called for in those instances in which a firm or set of firms has the potential to exercise market power, which, loosely defined, is the ability to restrict output and increase prices above competitive levels on a sustained basis. The source of market power can stem from various things including, but not limited to: product differentiation, the ability to restrict or hinder entry, the lack of viable alternatives, superior bargaining power and the ability to collude. The extent of regulation, of course, must be measured against the severity of market power. For example, heavy-handed regulation is probably not appropriate in those markets where a firm, or set of firms, while capable of exercising market power, can effectively achieve profits that are only slightly above normal. In this instance, the costs of regulation imposed on the market would likely outweigh any benefit achieved. It is preferable to explore options to

make the market more competitive without resorting to full regulation.

The existence of externalities, public goods and information asymmetries might also call for market intervention. Externalities can be either costs imposed or benefits generated that are not incorporated into market participants' decisions. The oft-cited example is pollution. As part of the manufacturing process, a firm can emit a sizable amount of pollution, the cost of which is borne by society rather than by the firm. This external cost is not internalized by the firm in its decision on how much to produce and, as a result, the firm produces too much. Public goods are those goods and services that are not likely to be provided by the private sector, primarily because it is extremely difficult to price these services and, most importantly, collect their costs from the final consumer. Public goods include services such as lighthouses and highway safety. Finally, in some cases, a firm can enjoy a substantial advantage over consumers as a result of an information advantage. For example, the products of drug companies are regulated because it is difficult for the consumer to make informed choices, absent extensive research, about these types of products. The presence of any of the above market failures must be closely evaluated prior to choosing the appropriate pricing framework. The goal, however, of the pricing framework chosen is clear.

B. The Goal of the Chosen Pricing Framework Is to Emulate Competitive Market Pricing

Choosing among the pricing frameworks outlined in the previous section is rather straightforward. The regulator must choose the framework that best responds to the type of market failure observed. More important, such pricing framework should emulate a competitive market price structure.

It has long been held that the pricing and production outcomes observed in a fully competitive market are far superior to those resulting from regulation. This is so because to have *any* chance of replicating the results of a competitive market, the regulator must have access to a mass of information that is both costly and difficult, if not impossible, to obtain. As a result, the pricing dictated by regulation is generally far removed from its competitive counterpart, thus resulting in highly distorted and inefficient consumption, production and

investment decisions.

Competitive market solutions are desirable primarily for the following reasons:

- Competitive markets ensure an efficient allocation of resources.
- Competitive markets reduce/eliminate subsidies/tax burdens and the resulting deadweight loss.
- Competitive markets minimize transactions costs.
- Competitive markets are self-sustaining.

The first point listed comes directly from any principle-level economic textbook. Competitive markets achieve what economists call allocative and productive efficiency. Allocative efficiency is another way of saying that goods and services are allocated to those who value them the highest. Productive efficiency refers to the fact that firms produce those goods and services and minimize long-run cost. Allocative and productive efficiency implies that resources cannot be reallocated in such a way as to benefit both consumers and producers.

The other three reasons listed above are somewhat subsumed in the first, but deserve special attention. Competitive markets are desirable in that they reduce or eliminate subsidies and tax burdens, and thus eliminate what economists call deadweight losses. Deadweight losses are simply lost consumer and producer benefits. Competitive market solutions are also void of direct or indirect subsidies or taxes. In a regulated environment, firms have the potential to subsidize and cross-subsidize certain services. In competitive markets, these subsidies and the associated deadweight losses could not be sustained.

As mentioned previously, the goal of cost-of-service pricing is to achieve a rate consistent with the average cost of a regulated firm. This is not a competitive market outcome. An efficient equilibrium condition is one in which price is set equal to long-run marginal cost. By setting a rate equal to average cost, a deadweight loss is generated.

Competitive markets also minimize transaction costs. Economists have a rather exhaustive definition of transaction costs. Transactions costs include not only the pecuniary costs incurred to negotiate, but also include the non-pecuniary costs firms and individuals incur in the course of negotiation and contracting. The first type of cost is of importance here. As opposed to regulated markets, competitive markets do not impose the pecuniary costs imposed on regulators and regulated firms. An immense sum of money is spent establishing and maintaining a regulated rate structure.

Probably the most desirable feature of competitive markets is the ability to ensure a self-sustaining market structure. That is, by definition, a competitive market has no barriers to entry or exit and consumers are free to migrate to the most efficient (*i.e.*, lowest-cost) producer. The make up of firms and consumers might change over time, but the actions of all market participants and the resulting pricing and production outcomes will be consistently equivalent to a competitive market standard.

With the desirable features of a competitive market as a backdrop, the regulator must then evaluate to what extent a market or industry has features consistent with a competitive market in deciding whether to intervene. That is, intervention must be premised on the basis of market failure.

C. *Choice of Pricing Framework*

The preceding discussion makes it clear that a competitive market solution is, and has always been, preferred to a regulatory solution. Thus, in deciding on the appropriate pricing framework for a regulated firm, the regulator must first make a threshold determination. That is, the regulator must decide whether the market or industry exhibits features consistent with a competitive market. The regulator must determine the presence or likelihood of the market failures listed at the beginning of this discussion. However, by far, the most critical question that must be raised is whether, absent regulation, a firm or set of firms could exercise market power on a sustained basis.

If upon evaluation, a market or industry is shown to have no inherent features inconsistent with a competitive marketplace, the choice of pricing framework is clear. In the absence of evidence to suggest a market is not competitive, the pricing regime must be dictated through negotiation. Buyers and sellers must be free to negotiate a price at which a good or service is transacted. This choice, for all the reasons listed previously, will result in the highest level of economic benefits for all parties.

In the event a market or industry exhibits some features contrary to a competitive marketplace, the regulator must then choose the pricing framework that best approximates the competitive standard, while at the same time minimizing costs to the regulator and the firm being regulated. The latter is a recognition that any pricing framework chosen, other than free negotiation, will entail costs. The deadweight losses and associated distortions are such costs and will be borne by the market as a whole. Additionally, the regulator and the regulated firm will also bear costs over and above those incurred by society in that the framework established will require extensive reporting and auditing requirements. Finally, for reasons cited earlier, once a rate regime is established, it can be expected that the interests of the firm and customer will likely begin to diverge. In choosing the appropriate pricing framework, it is important to recognize the costs imposed as well as the perverse incentives that can arise. The 1996 Act was a response to the prior problems inherent in regulated industries, and a reaffirmation that competitive market results are preferred.

Section V. The 1996 Act Revisited: Intent and Supporting Economic Theory

It is not possible to render judgment on the appropriate framework for poles and conduits without referring to the 1996 Act. The 1996 Act was a comprehensive and ambitious piece of legislation with a clear and resounding theme. The 1996 Act was meant to establish a "pro-competitive, de-regulatory national policy framework."[37] This theme and Congressional intent are abundantly clear in the legislation. The Senate stated that "[c]ompetition, not regulation, is the best way to spur innovation and the development of new services. A competitive

[37] S. Conf. Rep. 230, 104th Cong. 2d Sess. 113 (1996).

marketplace is the most efficient way to lower prices and increase value for consumers."[38] Similar legislation came from the House of Representatives. Its bill was designed to "promote competition and reduce regulation."[39]

The FCC has made it clear that it is important to choose and establish a pricing framework consistent with the competitive theme of the 1996 Act. For example, in the First Report and Order Regarding Local Competition, the FCC set forth its pricing provisions for interconnection and unbundled elements. In rejecting a cost-based pricing framework based on embedded costs, the FCC offered the following rationale: "[a]n 'embedded cost' based pricing methodology would be pro-competitor — in this case the incumbent LEC — rather than **pro-competition.**"[40]

The FCC's position in this order is particularly instructive and has direct relevance to the choice of a pricing framework for poles and conduits. First, it demonstrates the FCC's commitment to employ a framework that is logically consistent with established economic theory.

A. The FCC's Choice of Pricing Framework for Interconnection and Unbundled Elements Was Firmly Grounded in Economic Theory

The FCC's rejection of a pricing framework based on embedded costs in favor of a cost-based framework based on forward-looking costs is entirely consistent with economic theory and the decision framework presented in Sections III and IV. Namely, the FCC sought to develop a framework that addressed potential market power concerns while at the same time generating a rate structure consistent with competitive market principles.

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38 Telecommunications Competition and Deregulation Act. 141, Cong. Rec. S 8570, Vol. 141, No. 99, June 5, 1995.

39 Telecommunications Act of 1996, H. Rep. No. 104-458, Jan. 31, 1996.

40 First Report and Order Re Local Competition of the Federal Communication Commission Common Carrier Docket 96-98, paragraphs 704-705, emphasis added.

In establishing its pricing framework for ILECs, the FCC treated ILECs as "essential facilities." This designation recognized the control the ILECs exerted over the facilities and the need to allow access to potential competitors as a precursor to the development of a competitive market. In the rare instances in which this designation arises, it is clear that negotiated or market-based rates are not appropriate. There is simply too great a tendency for the incumbent firm to restrict access to its facilities, either directly through physical denial or indirectly by means of charging a price for access that is uneconomic for the entrant. Faced with the potential abuse of market power, the FCC correctly chose a cost-based ratemaking methodology. However, understanding the need to develop a rate structure consistent with competitive market principles, the FCC chose a cost-based methodology that approximates competitive market prices.

The FCC adopted a Total Element Long-Run Incremental Cost ("TELRIC") approach that captures forward-looking long-run economic costs. Of particular importance is the fact that under TELRIC, the ILEC must value its plant investment at replacement costs based on the most efficient technology. The FCC's rationale for adopting TELRIC was clear. The FCC has stated that TELRIC is appropriate because it:

- Simulates a competitive market;
- Prevents the incumbent LEC from exploiting market power; and
- Creates correct incentives.[41]

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[41] *Ibid.*, paragraph 635.

The FCC was correct in its determination that an embedded cost framework based on historical plant investment would not achieve the above objectives. The rate structure developed using historical embedded costs would in no way mimic competitive market prices in that the plant investment for the ILECs far exceeded its replacement value. Thus, the rate charged by the ILEC would far exceed that of a new entrant. Given such a large discrepancy, incentives for the ILECs and competitive entrants would be severely distorted. The FCC's choice of a cost-based rate will indeed prevent ILECs from exploiting their market power.

Section VI. The Appropriate Pricing Framework for Poles and Conduits

A. The Choice of Pricing Framework for Pole and Conduits Must Be Guided by the Theme of the 1996 Act and the Same Set of Economic Principles Relied on for Interconnection

The FCC has made clear its intent to deregulate and rely on market-based pricing methods to the maximum extent possible. This same determination and spirit should extend to the pole and conduit arena. The issue that must be addressed, of course, is whether and to what extent price deregulation is appropriate for pole attachments and conduit access.

In deciding on the appropriate pricing framework for pole attachments and conduit access, the FCC is faced with the same threshold issues identified in Section IV and confronted in its decision on ILECs. Accordingly, the FCC must determine whether a market failure exists in the market for pole attachments and conduit access. Of the types of market failures listed in Section IV, the FCC need only concern itself with the potential for electric utilities to engage in anti-competitive behavior. Issues such as economies of scale or scope, externalities, public goods and information asymmetries, have little relevance to the Commission's deliberations.

As will be discussed, there are already alternatives to the utilities' poles and conduits for entities seeking access. Thus, economies of scale and the desire to establish a protected monopoly cannot be a guiding motivation for regulation. There is also nothing to suggest that the electric utilities and the entities desiring access are nothing but fully informed, which renders moot any justification to regulate on the basis of asymmetric information. The only relevant form of market failure the Commission needs to consider is the issue of market power. The Commission must first determine whether the market for pole attachments and conduit access can be characterized as workably competitive and impose a pricing framework consistent with that determination. Second, in the event the FCC determines that the market for pole attachments and conduit access does not display the requisite competitive features, it must choose that cost-based methodology which best replicates competitive market conditions.

In determining whether negotiated rates for pole attachments and conduit access are appropriate, it is critical that the market for these services be evaluated with the proper set of analytical tools. The next section describes the relevant analytical perspective for this evaluation.

Note: In what follows, we discuss the appropriate analytical approach that should be used to determine whether negotiated rates should be allowed for pole and conduit access. We realize the FCC's discretion as to the pricing framework it adopts is constrained under Section 224(d). Specifically, there is nothing in the statute that gives the Commission authority to allow negotiated (i.e., *market-based) rates. In spite of our recognition of the Commission's*

limitations, we have included this discussion for two reasons. First, an evaluation of whether negotiated rates are appropriate is called for simply because it provides the Commission with needed information on the competitiveness of the market for pole attachments and conduit access. This, in turn, provides the FCC with useful information in its deliberations on the most appropriate cost-based rate methodology. Second, while constrained under Section 224(d), the Commission will not be constrained under Section 224(e), which dictates pricing for such access in the post-2000 market. Specifically, Section 224(e) anticipates a negotiated result. Thus, an evaluation of the market for pole attachments and conduit access is called for and consistent with prospective statutory intent.

1. The Typical Approach to Market Evaluation

The typical analysis conducted to determine whether a market is competitive or whether a specific firm has the potential to behave anti-competitively proceeds by assessing the structural and behavioral features of the market and incumbent firms. A structural analysis begins by defining the relevant economic and geographic market for the good or service in question. As part of the analysis, the good or service is defined and any relevant alternatives are identified. Following identification of the good or service, the firms capable of providing the good or service are catalogued and their relative sizes noted. From this information, the analyst calculates measures of market concentration and firm market share. The calculations of concentration and market share are then used, in part, to infer the potential for market power. The potential for market power is generally said to increase with market concentration and firm size.

The structural analysis has a long tradition but has been criticized severely by economists.[42] The primary criticism is that the structural analysis leaves no room for conduct or behavior. Under the pure structural approach, market performance follows directly from conduct, which itself follows directly and entirely from market structure. It is now widely understood that this is terribly inadequate as an evaluative tool. There are simply too many observed counter examples in which a highly concentrated industry behaves extremely competitively while slightly or moderately concentrated industries exhibit conduct similar to the standard model of monopoly. To explain the plethora of counter examples, economist long ago began to emphasize the behavioral attributes of a market or firm.

The behavioral analysis goes beyond simple measures of market structure and instead investigates the behavioral features of the market that can facilitate or hinder an exercise of market power. Included in the set of behavioral features investigated are:

- The ease of actual and threatened entry;
- The ease or difficulty of collusion;
- The nature of bargaining power; and
- The dynamic interaction of firms over time.

2. <u>The Relevant Analytical Approach for Pole Attachments and Conduit Access</u>

Based on a pure structural standard, any measure of concentration for the pole attachment or conduit access market is extremely high. Simply put, the electric utilities and telecommunications companies own the vast majority of poles and conduits. Based on this recognition, one might conclude that negotiated or market-based rates are not appropriate. This,

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[42] See for example, R. Schmalansee, Inter-Industry Studies of Structure and Performance, *The Handbook of Industrial Organization*, 1986.

however, is an erroneous conclusion on two grounds. First, even if one adopts the pure structural standard, a correct market definition would include all the potential alternatives to pole attachment and conduit access. Second, and vastly more important, a purely structural analysis is silent on the nature of competition and the bargaining relationship between electric utilities and cable and telecommunications companies.

While electric utilities do own poles and conduit, this is not the sole means by which cable and telecommunications services can be provided. For example, a CLEC wanting to enter a telecommunications market can lease telecommunication capacity from ILECs. A CLEC can also employ wireless technology. Finally, directly burying cable underground is another alternative to utility pole and conduit capacity.

The list of alternatives goes on. Cable and telecommunications companies themselves have their own conduit systems and rights-of-way which can be used, in some cases, as a direct substitute to utilities' poles and conduits. The existing resources of the cable and telecommunications companies are significant and are being aggressively expanded to meet anticipated market demand. The expansions of capacity are not only taking place as a means to link large geographic areas, they are being pursued to target very specific residential areas.[43] In addition to these alternatives, cable and telecommunications companies can also obtain conduit space from water utilities, long-distance carriers, other competitive access providers, highway authorities, transit authorities, sewage system operators and even freight tunnels in some cities. Cable and telecommunications companies can also pursue agreements with railroad, and gas and petroleum pipelines as alternatives to the electric utilities' poles and conduits.

It is important to revise the structural analysis to account for the availability of the alternatives just described. However, as a guiding analytical principle, it is far more important to recognize, and reflect in one's analysis, the nature of competition and bargaining relationship

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[43] For example, Pacific Bell, MCI, AT&T and others plan to rewire the entire City of San Diego, including burying new coaxial underground connections into individual homes.

between electric utilities and cable and telecommunications companies.

First, there is little to no direct competition between the parties. Moreover, in those instances where electric utilities compete with cable and telecommunications companies, the degree of competition is minimal in that the electric utility holds a negligible market share and generally exercises control only through an affiliate company. Second, as discussed below, the question of who enjoys a superior bargaining position would be incorrectly answered if it is assumed that the electric utilities enjoy a preferred position.

a. *The Competitive Dynamics*

Any analytical exercise that sets out to determine whether electric utilities can exercise market power over the rates charged for pole and conduit access must begin by identifying the competitive posture of the utilities vis-à-vis the cable and telecommunications companies. A similar threshold issue was raised by the FCC in the Local Competition Order.

In that Order, the FCC correctly imposed an "essential facilities" designation on the ILECs, but not on the CLECs. The former were said to exert significant control over the means of competition, while the latter were not. This was of critical importance because the ILECs competed head-to-head with the CLECs. The FCC was clear on the need to force the incumbent LEC to provide access. The FCC stated, "Unlike other commercial bilateral negotiations, a competitive local exchange carrier or other new entrant comes to the table with little or nothing the ILEC needs or wants." The ILECs have a clear motivation to restrict access because in so doing they enhance their own competitive position.

An essential facilities designation cannot be imposed on electric utilities. This designation is required in those instances in which a monopolist refuses to provide a competitor access to facilities which are essential to competition in the relevant market. The core business of electric utilities is the provision of electric services, it is not the provision of cable or telecommunications services. The core business *is* the relevant market, and thus the only basis for an essential facilities designation. It cannot be applied to pole attachments or conduit access.

In short, the only conceivable analogy for electric utilities to the position taken by the FCC in the case of ILECs would be if the electric utilities were required to provide access on their poles for the wires of competing electric utility companies. This is not the case.

Unlike negotiations between the ILEC and CLEC, those between electric utilities and cable and telecommunications companies can be described as simple bilateral negotiations. In contrast to the case of the ILEC and CLEC, the cable or telecommunications company does come to the table with something the electric utility wants and needs. Specifically, the cable and telecommunications companies provide an additional revenue source for the electric utilities.

As previously stated, there is minimal competition between electric utilities and cable and telecommunications companies.[44] Without head-to-head extensive competition between the parties, there is no motivation to restrict access. Far from wanting to restrict access, utilities are highly motivated to bargain with cable and telecommunications companies simply due to the nature of what is being negotiated. Electric utilities are essentially marketing available capacity on their poles and in their conduits for non-electric services. They are not marketing something to a direct competitor, thus there is no threat of competition as is the case between ILECs and CLECs. The utilities' marketing of available capacity is analogous to the commercial building owner who leases advertising space on the side of his building.

The electric utility is, in fact, highly motivated to market space on its poles and conduits. In the absence of pole attachments and conduit access, the total cost of these assets is borne solely by the utilities' customers. To the extent the utilities can market these assets, their customers are made better off, as is the utility's competitive position in the electric distribution

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[44] As a result of the 1996 Act, public utility holding companies are now allowed to enter the telecommunications and video market. As of January 1997, only 18 such entities have applied under Section 103 of the 1996 Act. (See Federal Communication Commission, CS Docket No. 96-133, Third Annual Report, p. 7.) In general, utilities have entered these markets through affiliate companies. State commissions, in many cases, have existing "standard of conduct" rules for utilities which prevent them from providing preferential treatment to affiliates. For example, as a general rule, the terms and conditions of any service offered to affiliates must be extended to non-affiliates.

market.

Unlike ILECs, electric utilities are not marketing something that will ultimately be used to hurt their competitive position; they are marketing available capacity. The revenues from their efforts can be used to reduce the distribution costs to customers. As a proportion of total operation and maintenance expenses and total distribution investment, overhead poles and underground conduit are generally large cost components. Therefore, as a proportion of distribution-related costs, poles and conduits are significant items. From this it follows that any revenues the utility receives from marketing capacity on its poles or in conduits will have a non-negligible and favorable impact on distribution costs.

The need to reduce distribution costs for electric utilities is heightened in today's environment. Many electric utilities now operate under performance-based ratemaking ("PBR") programs.[45] Under these programs, a distribution-related cost benchmark is established that the utility must beat. If the utility is successful and costs fall below the benchmark, the electric utility is allowed to retain some of the savings. Conversely, if costs rise above the benchmark, the utility is forced to absorb a share of the excess costs. The revenues received from the utilities' pole and conduit marketing efforts could be used to offset costs. Thus, the electric utility has an added incentive to reduce costs and be as aggressive as possible in their marketing of pole and conduit capacity.

Without regard to PBRs, the electric utilities are clearly motivated to reduce costs as a result of the ongoing federal and state-level restructuring efforts.[46] Electric utilities today face,

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[45] At least 14 electric and gas utilities have proposed and/or implemented PBR programs: Boston Gas Company, Boston Edison Company, Eastern Edison Company, Massachusetts Electric Company, Public Service Electric and Gas Company, Southern California Gas Company, Western Massachusetts Electric Company, Southern California Edison, San Diego Gas and Electric Company, Oklahoma Gas and Electric Company, Rochester Telephone, Mid-American Energy, United Illuminating, Central Maine Power, and Pacific Gas and Electric Company. Source: published reports.

[46] All but one of the fifty states, either through their regulatory commissions, legislatures, or both, are considering or implementing policies to provide greater competitive options for retail electric consumers. Nine of the ten states that are far down the path to opening their local markets to competition have chosen to do so only in the last nine months, and customers residing in these states

or will eventually face, competition in what was once an established monopoly service territory. The restructuring efforts underway in the electric industry are quite similar in concept to those for telecommunications services. The states and federal government are advocating more access by customers to third-party suppliers. As the traditional markets being served by electric utilities are opened, the utilities face competitive threats from other suppliers, including large energy marketers. The long-term survival of electric utilities depends critically on their ability to reduce all costs, including distribution. The aggressive marketing of available pole and conduit capacity is one way to reduce those costs.

The discussion thus far has established why utilities are motivated to bargain with cable and telecommunications companies. The next section explains why the results of such negotiation can be expected to produce a competitive result.

b. *The Bargaining Relationship Between the Parties*

The bargaining relationship between market participants plays a key role in any market power or antitrust evaluation. Absent an evaluation and recognition of the bargaining relationship between electric utilities and cable and telecommunications companies, it would be impossible to render an informed opinion on a suitable pricing framework.

In the previous section, the economic motivation underlying the willingness of the utilities to market available capacity on their poles and conduits was discussed. In essence, this willingness brings the utilities to the bargaining table. Once at the table, the determination as to who enjoys a preferential bargaining position is dictated by a number of factors, including size, market presence and availability of bargaining options of the parties.

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represent over one-third of the nation's population. Stated another way, more than one-third of the nation's population lives in states that have chosen within the last year to move to open-access, customer choice markets. Several states have legislation in place requiring retail choice: California, New Hampshire and Rhode Island by 1998, Maine by 2000, and Montana by 2002. Several public service commissions have issued plans ordering open access: Massachusetts and Vermont by 1998, Arizona by 1999, and New Jersey by 2001. Finally, legislation for direct access has been proposed in Pennsylvania, Oregon, Oklahoma, and South Carolina.